DNR Coolwater Production Strategy for 2008

April 7, 2008

Background

The recent introduction of Viral Hemorrhagic Septicemia virus (VHSv) and fish kills resulting from this disease forced the DNR to curtail the rearing and stocking of coolwater fish (walleye, muskellunge, northern pike and lake sturgeon) in 2007. Since reliable egg disinfection methods for coolwater species was not available and risks from this disease could not be managed, DNR ceased production of walleye, muskellunge and northern pike from Michigan sources to prevent the virus from being introduced into the state's fish hatcheries and from being spread into other waters of the state.

Much has been learned about VHSv in the past year. This includes the completion of experiments with egg disinfection chemicals on the survival of coolwater eggs, a better understanding of the distribution of VHSv in our waters, and the analysis of scientific literature on similar viruses (e.g., IHNv) related to where those viruses are likely to be and how those viruses are managed. Although additional information is needed, particularly the effectiveness of egg disinfection in killing VHSv on coolwater eggs, sufficient information is available to allow DNR to begin to manage the coolwater production risks surrounding VHSv. While not completely risk-free, the proposed coolwater production strategy will greatly minimize risks, allow the limited production of coolwater fish, and allow the DNR to learn how to manage this disease issue.

Proposed Strategy

In 2008, the DNR plans to produce approximately 2 million spring fingerling walleye (about 20% of the normal production) and up to 50,000 fall fingerling muskellunge. Northern pike will not be produced in 2008. Lake sturgeon will be produced in very limited numbers, up to 5,000 fall fingerlings. We will use the following measures to control the risk of spreading VHSv to our hatcheries and to other waters in the state:

Coolwater Broodstocks. Even though DNR did not produce coolwater fish in 2007, all wild coolwater broodstocks were tested for VHSv and all of these broodstocks were negative. These included Muskegon River, Little Bay de Noc and Tittabawassee River walleye; and Thornapple Lake and Lake Hudson muskellunge. Fish from nearby Great Lakes waters of the Muskegon and Tittabawassee Rivers were also tested and were negative. While fish from Little Bay de Noc were negative for VHSv, VHSv was found in lake whitefish, brown trout and smallmouth bass in nearby Lake Michigan and Green Bay waters in Wisconsin.

In 2008, DNR will again test all coolwater broodstocks to provide us a continuous record of their fish health status. Given the proximity of VHSv in Wisconsin waters of Green Bay, DNR is only using Muskegon River walleye for general egg-take purposes to reduce the risk of VHSv being found in eggs and sperm. At this time and as long as the broodstock remains VHSv negative, a limited egg take is planned for Little Bay De Noc

walleye. Muskellunge production will use broodstock fish from Thornapple Lake and Lake Hudson as these inland lakes and their surrounding waters are not infected with VHSv. Lake sturgeon eggs and sperm will be taken from the Sturgeon River, a Lake Superior tributary which is negative for VHSv.

Stocking Size. Because the test for VHSv takes up to 4-6 weeks to confirm whether samples are negative, DNR will not stock any fry as insufficient time is available to assure the fish are negative prior to stocking. Typically, DNR stocks up to 30 million walleye fry and 1 million northern pike fry. This size of fish will not be stocked until we have definitive information on the effectiveness of disinfection methods in killing VHSv in coolwater fish or new rapid tests for detecting VHSv become available.

We will produce spring fingerling walleye and fall fingerling muskellunge. These fish sizes provide us with ample opportunity to destroy any fish found to be infected.

VHSv Testing. To reduce the risk of VHSv from being introduced into Thompson or Wolf Lake State Fish Hatcheries, or into waters of the state, a rigorous program of VHSv testing will be conducted.

Walleye. Muskegon River walleye broodstocks have been sampled for VHSv prior to egg takes and were negative. A full fish health assessment is being made during egg takes. Sampling and testing of broodstock prior to egg take will provide a preliminary assessment on VHSv status. VHSv testing at egg take will include complete fish health sampling on 120 fish, and ovarian and milt sampling on all adult fish used in the egg take. If VHSv is present in high titers in the broodstock fish, initial VHSv testing will allow us to dispose of any infected eggs or fry as eggs incubate for 18-28 days and fry are in the hatchery for another 4 days after that time. When the fry are hatching, additional samples will be taken to test for VHSv to determine the status of these fish. If positive, we will destroy any fish that are in the rearing ponds.

Little Bay De Noc walleye broodstock have also been negative thus far this spring for VHSv. These fish will be tested using the same procedures as described for Muskegon River walleye broodstock fish.

Muskellunge. Muskellunge broodstocks in Lake Hudson and Thornapple Lake are rare resources so the lethal sampling of these fish is not appropriate as they cannot be easily replaced. Samples of milt and ovarian fluids will be taken during egg takes in a non-lethal fashion and tested for VHSv. This will provide good data on the status of the broodstocks. Similar to walleye, if VHSv is present in high titers in the broodstock fish, initial VHSv testing will allow us to dispose of any infected eggs or fry as eggs incubate for 17-19 days and fish are kept in the hatchery after that period for another month. When fry are in the hatchery, additional samples to test for VHSv will be taken to determine the status of these fish. If positive, we can destroy the fish and disinfect the rearing facility. A full fish health inspection will be conducted approximately 2 months prior to stocking,

which will include testing again for VHSv. Any positive lots of fish will be destroyed at this point.

Hatching. Typically, coolwater fish are hatched at Wolf Lake and Thompson State Fish Hatcheries. Since the effectiveness of the disinfection technique is not certain and given the difficulty of separating walleye from steelhead incubation at Wolf Lake State Fish Hatchery, walleye will only be hatched at Thompson State Fish Hatchery. This will reduce the overall hatching capacity for the program statewide but provides the most protection for our hatchery system.

Additional protection for our hatchery system will be ensured by having Little Bay De Noc walleye raised at the Chippewa-Ottawa Resource Agency Nunns Creek facility which is on a tributary to Lake Huron. Their assistance is greatly appreciated.

Muskellunge will be hatched and reared at Wolf Lake State Fish Hatchery in the old Hatchery building, which has a separate water supply and discharge point from the main hatchery complex.

Rearing. Normally, walleye are extensively reared in a combination of drainable and non-drainable ponds scattered throughout the state. Since muskellunge require significantly more fish culture effort and require live feeds, they are reared in the Fish Quality Laboratory and in isolated drainable ponds at Wolf Lake State Fish Hatchery.

Walleye. It is not possible to be completely sure about the VHSv status of walleye prior to being stocked in rearing ponds as we hold them in our hatcheries a shorter time than the time it takes to complete a full VHSv testing. Thus, only ponds that are not drainable will be used in production this year except for a few drainable ponds that have outlets into either known positive waters or to waters that are the broodstock source waters. This will ensure that draining ponds will not accidentally infect currently negative waters and provides us the opportunity to destroy any fish prior to stocking that are found to be positive. While this also constraints production abilities, it is the least risk course to rear walleye.

Muskellunge. Since many additional opportunities are available to test for VHSv in muskellunge and they are reared in an isolated location at Wolf Lake State Fish Hatchery, they will be reared using normal practices. Once testing is complete on the muskellunge in the Fish Quality Laboratory, they will be moved to isolated rearing ponds on site at Wolf Lake State Fish Hatchery away from the coldwater production.

Additional Biosecurity Measures. Since it is not possible to have a completely risk-free coolwater program, additional biosecurity measures have or will be implemented at Thompson and Wolf Lake State Fish Hatcheries.

Thompson State Fish Hatchery. A temporary wall has been installed between the incubation area and the early rearing area at the hatchery to prevent the aerosol

transport of VHSv. This barrier includes curbing on the floor to prevent the mixing of water on the floor between the incubation and the early rearing areas. Additional foot disinfection baths have been installed, and movement between the incubation area and the main hatchery complex will be controlled and minimized to prevent the movement of VHSv to coldwater early-rearing areas.

Additionally, all steelhead incubation has been suspended at Thompson State Fish Hatchery to ensure that cross contamination of steelhead with VHSv from any positive walleye can not occur.

Wolf Lake State Fish Hatchery. All coolwater rearing will be confined to the relatively isolated Fish Quality Laboratory, which is separate from the Main Hatchery Building and all coldwater rearing. Typically, we incubate coolwater fish adjacent to steelhead in the Main Hatchery Building but this will not be done this year. Equipment will be kept separate between the facilities, separate work boots and clothes will be used, and additional disinfection foot baths have been installed at the Fish Quality Laboratory. All of these measures will greatly reduce the risk of VHSv being transferred to coldwater fish at this hatchery if in fact VHSv happens to be found in the muskellunge being reared in the Lab.

Stocking. Even with all of the biosecurity measures discussed above, there is no way to completely eliminate the risk of stocking VHSv positive fish. Fisheries Division will, therefore, restrict the locations where walleye can be stocked. For walleye, Fisheries Division will only stock waters from which egg takes were conducted (Muskegon River and Little Bay de Noc); waters in which Muskegon River and Little Bay de Noc walleye broodstocks normally can move to; and for Muskegon River walleye only, Lake Michigan or Lake Huron inland lakes without any connections to other waters. Because the risk is much lower and manageable for muskellunge as we can repeatedly test them prior to stocking, we will be stocking these fish in normal stocking locations.